IN THE CLAIMS:

Claim 1 (cancelled).

Claim 2 (currently amended): An optical information recording device which irradiates information light holding information and reference light onto a recording medium using an object lens, causes interference in the information recording layer of the recording medium, and records information using the resultant interference patterns, comprising:

a first spatial light modulator for generating said information light by spatially modulating light from a light source by a plurality of pixels and

a second spatial light modulator for generating the reference light by spatially modulating light from the light source by a plurality of pixels; wherein

an area of said reference light on an entrance pupil surface of said object lens is formed such as to surround the area of said information light, and

said reference light is spatially modulated into a plurality of radial line patterns extending radially out from the area of said information light, in the area of said reference light, by said second spatial light modulator.

Claim 3 (cancelled).

Claim 4 (previously presented): The optical information recording device according to claim 2, wherein said first spatial light modulator and said second spatial light modulator comprise a first display area and a second display area of a shared spatial light modulator, respectively.

Claim 5 (original): The optical information recording device according to claim 4, wherein said spatial light modulator comprises a plurality of pixels which can modulate the intensity of light, and the phases of emission lights vary according to the positions of a plurality of said pixels.

Claim 6 (previously presented): The optical information recording device according to claim 5, wherein the phase distribution of said reference light has a cycle pattern.

Claim 7 (cancelled).

Claim 8 (currently amended): An optical information recording method which irradiates information light holding information and reference light onto a recording medium using an object lens, causes interference in the information recording layer of the recording medium, and records information using the resultant interference patterns, wherein:

both said information light and said reference light are spatially modulated by a plurality of pixels;

an area of said reference light on an entrance pupil surface of said object lens is formed such as to surround the area of said information light; and

said reference light is spatially modulated into a plurality of radial line patterns extending radially out from the area of said information light, in the area of said reference light.

Claim 9 (currently amended): The optical information recording method according to claim 8, wherein the center of the area of said information light, the center of the area of said reference light, and the virtual center point of said plurality of radial line patterns are the optical axes of the optical system.

Claim 10 (currently amended): The optical information recording method according to claim 8, wherein a plurality of reference lights with differing pattern-forms are formed by having different virtual center angles between a plurality of said radial line patterns or by rotating said plurality of radial line patterns with the virtual center point as a center of rotation, and multiplex recording of a plurality of interference patterns are performed in a plurality of superimposed areas within said information recording layer using said plurality of reference lights with differing patterns.

Claim 11 (cancelled).

Claim 12 (cancelled).

Claim 13 (cancelled).

Claim 14 (previously presented): The optical information recording method according to any one of claims 8 to 10, wherein both said information light and said reference light are spatially modulated by the same spatial light modulator.

Claim 15 (original): The optical information recording method according to claim 14, wherein the light intensity and phase of said reference light are spatially modulated by said spatial light modulator.

Claim 16 (previously presented): The optical information recording method according to claim 15, wherein the phase distribution of said reference light has a cyclic pattern.

Claim 17 (cancelled).

Claim 18 (currently amended): An optical information reproduction device for reproducing the information from a recording medium having an information recording layer in which the information is recorded in the form of interference pattern, comprising:

a light source,

a spatial light modulator for generating a reference light by spatially modulating light from said light source by a plurality of pixels,

an object lens for irradiating said reference light onto the interference pattern recorded on the information recording layer of the recording medium and passing through a return light from the recording medium including a reproduction light generated by interference of said reference light and the interference pattern, and

an optical detector for detecting said reproduction light; wherein

an area of said reference light on an entrance pupil surface of said object lens regarding said reference light is formed such as to surround the area of said reproduction light on this entrance pupil surface, and

said reference light is spatially modulated into a plurality of radial line patterns extending radially out from the area of said reproduction light in the area of said reference light by said spatial light modulator.

Claim 19 (cancelled).

Claim 20 (previously presented): The optical information reproduction device according to claim 18, wherein said spatial light modulator comprises a plurality of pixels which can modulate the intensities of lights, and the phases of emission lights vary according to the positions of a plurality of said pixels.

Claim 21 (previously presented): The optical information reproduction device according to claim 20, wherein the phase distribution of said reference light has a cyclic pattern.

Claim 22 (cancelled).

Claim 23 (currently amended): An optical information reproduction method for reproducing the information from a recording medium having an information recording layer in which the information is recorded in the form of interference pattern, wherein:

generating a reference light by spatially modulating light from a light source by a plurality of pixels,

irradiating said reference light onto the interference pattern recorded on the information recording layer of the recording medium by an object lens,

passing through a return light from the recording medium including a reproduction light generated by interference of said reference light and the interference pattern into said object lens, and

detecting said reproduction light by an optical detector;

an area of said reference light on an entrance pupil surface of said object lens regarding said reference light is formed such as to surround the area of said reproduction light on this entrance pupil surface; and

said reference light is spatially modulated into a plurality of radial line patterns extending radially out from the area of said reproduction light in the area of said reference light.

Claim 24 (currently amended): The optical information reproduction method according to claim 23, wherein the center of the area of said reference light and the virtual center point of said plurality of radial line patterns are optical axes of the optical system.

Claim 25 (cancelled).

Claim 26 (cancelled).

Claim 27 (previously presented): The optical information reproduction method according to any one of claims 23 to 24, wherein the light intensity and phase of said reference light are spatially modulated by a spatial light modulator.

Claim 28 (previously presented): The optical information reproduction method according to claim 27, wherein the phase distribution of said reference light has a cyclic pattern.

Claim 29 (previously presented): The optical information recording device according to claim 2, comprising:

a servo light source which differs from the light source for recording information to said recording medium; and

a servo information acquisition means for obtaining address servo information recorded to said recording medium by the light from said servo light source.

Claim 30 (previously presented): The optical information reproduction device according to claim 18, comprising:

a servo light source which differs from the light source for recording information to said recording medium; and

a servo information acquisition means for obtaining address servo information recorded to said recording medium by the light from said servo light source.

Claim 31 (previously presented): The optical information reproduction device according to claim 2, wherein said reference light is further spatially modulated by said second spatial modulator such that said area of said reference light on the entrance pupil surface of said objective lens is formed asymmetrical to a virtual center point of said reference light area.

Claim 32 (previously presented): The optical information reproduction device according to claim 2, wherein a traveling direction of said reference light is deflected in a direction other than an optical axis of said objective lens.

Claim 33 (new): An optical information reproduction device for reproducing the information from a recording medium having an information recording layer in which the information is recorded in the form of interference pattern, comprising:

a light source,

a spatial light modulator for generating a reference light by spatially modulating light from said light source by a plurality of pixels,

an object lens for irradiating said reference light onto the interference pattern recorded on the information recording layer of the recording medium and passing through a return light from the recording medium including a reproduction light generated by interference of said reference light and the interference pattern, and

an optical detector for detecting said reproduction light; wherein

an area of said reference light on an entrance pupil surface of said object lens regarding said reference light is formed such as to surround the area of said reproduction light on this entrance pupil surface, and

said spatial light modulator comprises a first spatial light modulator for generating the information light and a second spatial light modulator for generating a reference light such that an area of the reference light at the entrance pupil of the object lens is formed to surround the area of the information light and the reference light is spatially modulated into a plurality of discrete radial patterns that are asymmetric to a virtual center point of the reference light area.